

REMARKS

Claims 1 - 8 are in this application and are presented for consideration. By this Amendment, Applicant has presented claim 1 for further consideration. Additionally, new claims 2 and 3 have been added which depend from claim 1. New claims 4, 5 and 6 are similar to claims 1 - 3 but highlight the combination in a different form and also emphasize the resulting structure with the fixed direction of the boron nitride particles in the region between the two parts, namely the heat generating part also referred to as heating device and the heat conductive part or heat conductive member. Claims 5 and 6 are similar to claims 2 and 3. New claim 7 is similar to claim 4 but specifies the orientation of the structure of the nitride powder, namely perpendicular to the two surfaces that are adhered together with the adhesive. New claim 8 is similar to claim 5.

Claim 1 has been rejected as being anticipated by Applicant's admitted prior art (AAPA). This rejection appears to be based on the discussion under the heading "BACKGROUND OF THE INVENTION" on pages 1 - 3 of the application.

Applicant first wishes to note that the discussion primarily relates to the teachings of particular references which are prior art. However, any other content presented in those pages is not indicated to be prior art. For example, the reference to conventional adhesives may or may not be prior art. This statement is simply made for completeness in that it appears that the rejection is based on particular prior art references and to that extent, these should be mentioned in the rejection.

Unlike the prior art as a whole, the present invention provides an electronic component

characterized by its structure wherein the heat conductive adhesive is made by blending boron nitride powder that has a diamagnetic an-isotropic magnetic susceptibility with an adhesive polymer. The resulting heat conductive adhesive is interposed between a heating device or heat generating component and a heat conductive member or heat conducting component. These components or the heating device and heat conductive member are adhered together with the conductive adhesive. Further the resulting structure has its boron nitride powder oriented in the heat conductive adhesive to a fixed direction. This is accomplished by subjecting the heat conductive adhesive in its position interposed between the heating device and heat conductive member under a magnetic field atmosphere by the use of the diametric an-isotropic magnetic susceptibility of the boron nitride powder.

A particular advantage of the invention relates to the heat conductivity of the boron nitride powder, having a flake shape, being very large in the flake shape surface direction compared to the flake shape thickness direction. As such, the particular orientation as claimed provides high heat conduction between the two parts, namely between the heat generating structure and the heat conducting structure.

Therefore, by orienting the powder or flake shape structure all in a similar direction, the heat conductivity of the boron nitride powder blended in the adhesive is very high in this fixed direction. The result is an adhesive structure having a very large heat conductivity in the fixed direction.

The electronic component of the present invention has the characteristic features that an adhesive structure is provided which is interposed and in contact and adhering to the two

components as noted above. The heat conductivity of the adhesive interposed between the heating device and the heat conductive member is thereby extremely high, providing good heat transfer out of the heating device or heat generating device. An electronic component which is excellent with regard to radiation can be realized according to the invention.

Moreover, the electronic component according to the invention is characterized in that the boron nitride powder is a boron nitride powder of the hexagonal system or cubic system. As the heat conductivity of the adhesive becomes high when such a boron nitride powder is oriented in a fixed direction, the use of these particular boron nitride powders is preferable.

Further, the electronic component according to the present invention is characterized in that the boron nitride powder is aligned in the gap direction of objects to be adhered to, namely in the adhesive thickness direction. In such a case the boron nitride powder is aligned and oriented in such a fixed direction to provide extremely desirable results. The direction where the heat conductivity of the boron nitride powder is very high corresponds to the direction connecting the heating device and the heat conductive member. The heat conductivity in this direction is improved providing an overall improved electronic component. Such an electronic component has excellent radiation characteristics.

The prior art discussed in the introduction presents heat conductive adhesives. There is the discussion with regard to boron nitride powder being used as a filler in such conductive adhesives. However, Applicant's admitted prior art (AAPA) does not present a teaching or suggestion as to the structure claimed. There is no discussion and no teaching nor a suggestion in the AAPA that the boron nitride powder is oriented in a fixed direction as claimed. Applicant

notes that this is a particular structural difference and the prior art fails to provide any teaching or suggestion to provide the structure as specified in the claims. Specifically, in the introduction portion of the application the direction of the boron nitride powder in the adhesive is not specified with any particularity. There is no teaching nor a suggestion to provide such an oriented powder. Further, according to the materials discussed in the introduction, the efficiency of the heat transmission is generally poor.

Accordingly, Applicant respectfully requests that the Examiner reconsider the rejections in view of the new claims and in view of the discussion above.

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